Modernization Partner

United States Department of Education
Student Financial Assistance

SFA Common Operating Environment (COE)

Executive Summary

Task Order #4

Deliverable #4.1.3

February 16, 2000

- *The SFA Common Operating Environment Document*

  - **Introduction to the COE Document**

  - Approach to the development of the COE Document

- *Project EASI/ED Standards & Products Not Considered in the COE*

  - Introduction to the Document

- *The Enterprise Architecture Management Evaluation of Project EASI/ED COE*

  - Introduction to the Document

Introduction To The Common Operating Environment

The Department of Education (ED) Office of Student Financial Assistance (SFA) Common Operating Environment (COE) Document is one of a series of products developed in conjunction with ED managers and community representatives to define information system requirements and architecture.

The COE Document is the primary tool for ensuring implementation using a standards-based open architecture. By establishing these standards, ED can ensure that as SFA systems are incrementally developed by various providers, each increment will work with other increments already implemented or planned.

The COE defines the target architecture standards for SFA. The COE dictates that no new development will be undertaken in technologies non-compliant with the specified standards unless this development is explicitly evaluated and approved.

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Document Organization and Content:

- ***Section 1 - Introduction:*** Describes and introduces the COE document, as well as detailing the document's purpose and scope.
- ***Section 2 - Technical Approach***: Describes the assumptions and constraints that affected the definition of the COE.
- ***Section 3 - Architecture Services, Standards, and Products:*** The "heart" of the COE definition.
  - Represented in each service component within the application support layer:
    - Brief definition
    - Sample correlation to business function(s)
    - Standards to be followed when implementing the service component
    - Products to be used in implementing the service component, as applicable
- ***Section 4 - Summary:*** The conclusion of the COE

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Document Organization and Content: (cont.)

- *Appendix A - Acronyms and Definitions:* Acronyms used in the COE Document, along with a definition of the term.
- *Appendix B - Glossary:* Lists and Defines many of the technical terms used in the COE Document.
- *Appendix C - References:* References used to develop the COE document.
- *Appendix D - Excluded TOGAF TRM Components:* Identifies those service components that were included in The Open Group Architecture Framework (TOGAF), but which were excluded from the COE Document, including an explanation as to why it was excluded.
- *Appendex E - Non-Selected Standards:* Those standards that were considered for inclusion in the COE, but were rejected.

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Section 2: Technical Approach:

This section identifies the assumptions and constraints that affected the definition of the COE Document. Additionally, it lists the architectural principles that influenced the selection of services and standards for inclusion in the COE. Several assumptions and constraints affected the decisions regarding the COE scope and content, which are covered within this section as well.

Architecture Principles:

Architecture principles are statements of preferred architectural direction or practice. Built upon work performed for the Project EASI/ED LDM and for the Project EASI/ED ASDD: SID, principles for data and process distribution were defined.

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Section 3: Architecture Services, Standards, and Products

This section provides a description of each service and its associated components. It correlates the components to the business functionality, and specifies standards and products to be used when each service component is implemented.

Data Interchange Services:

Provide specialized support for the exchange of information between application software on the same or different platforms. Subsection 3.1.1 presents the strategic finds for data interchange services.

Data Management Services:

Provide access to data, store data, monitor data storage, and control data I/O operations. Within SFA systems, data management services are central to on e of the core objectives for the vision-allow users ready, flexible, understandable access to data, within security constraints.

Section 3: Architecture Services, Standards, and Products (cont.)

Distributed Computing Services:

Enable various tasks, operations, and/or information transfers to occur on multiple, physically or logically dispersed computer platforms while maintaining a cooperative processing environment.

Middleware Services:

Network-aware services that layer between an application, the operating system, and the network transport layers. They also provide the network connectivity required for multi-tiered distributed computing. For SFA systems, middleware services also include Object Services.

Network Services:

Provide connectivity and basic services to facilitate communications accorss workgroups and among sites. They comprise the network infrastructure required to support distributed data access and interoperability in a heterogeneous environment.

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Section 3: Architecture Services, Standards, and Products (cont.)

Security Services:

Provide cross-platform management control over who can do what within a computer system and network. They support secure distribution and integrity of information, and protect the computing infrastructure from unauthorized access.

Section 4: Summary

The COE Document identifies the services appropriate to ED business requirements, and selects the best set of open, and technologically sound standards and products to implement those services. Services and their components are defined, and a set of standards is selected for each of those components. A mandated list of products is presented that must be used to implement the services, and which adhere to the standards within those services.

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This document presents the architecture services, standards, and products from Section 4 of the Project EASI/ED COE Document that were either not selected or considered during the identification of the Internet, Data Warehouse, and Enterprise Application Integration architectures.

It describes each service and its associated components; correlates the components to business functionality; specified standards and products to be used when each service component is considered as was presented originally in the Project EASI/ED COE Document.

The remainder of the document is organized into major subsections (or services), which contain standards that were not considered as applicable within the context of the scope and definition set for the current COE Document. Strategic findings for the services are discussed at the beginning of each major subsection. These findings provide an integrated summary of architecturally significant standards for that service's components.

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■ *The Security Documentation*

- Introduction to the Security Document

- Approach to the Development of the Security Document

- Introduction to the Security Architecture Framework Document

- Approach to the Development of the Security Architecture Framework Document

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This report presents the findings of an evaluation of the Student Financial Aid (SFA) Common Operating Environment (COE). A COE assists in the definition of information system requirements and architecture. The evaluation is based on the technology standards defined for each COE element in the Project EASI/ED COE Document and the adherence to, and the development of, these standards in the current and target SFA COE. Additionally, the EASI COE was compared to the Department of Defense (DoD) COE for currency of standards and comprehensiveness of architecture.

EASI COE
The Project EASI COE is relatively current, needing only a few updates to accommodate new standards.

Current COE

The current COE is comprised of the systems and architecture currently in use,
represented by the information contained in the Architecture Baseline
Characterization Document, Version 1.0. Generally the current COE is in
accordance with the EASI COE. However, there are a number of technologies
employed at ED that are not within the bounds of the EASI COE.

Target COE

The high level information gathered concerning the target COE, through interviews
with OSFA personnel, indicates the direction OSFA is taking, technologically, is
in accord with the EASI COE.

Recommendations

The EASI/ED COE should be used as a baseline and update, to accommodate the
newer and specific standards for the new COE. The updated COE should be
placed under an architecture management process. The OSFA Blueprint should
be updated with the necessary transition plans to allow for the retirement of
technologies not compliant with the updated COE.

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